

Field Review of the Draft K-12 Grade Span Expectations (GSEs) in Science

Rhode Island Grade Span Expectations K-12 in Science Review – Grade Span 5-8

Please Note:

Field Review input needs to be returned to RIDE by Thursday, December 1, 2005.

Please return completed information to:

Pat Kozaczka
RI Department of Education
Office of Instruction
255 Westminster Street
Providence, RI 02903
FAX: 401-222-6033
Pat.Kozaczka@ride.ri.gov

NOTE: You may submit a compilation of comments by attachment electronically to Peter McLaren at peter.mclaren@ride.ri.gov

Any questions regarding Field Review process may be directed to Peter McLaren (Peter.McLaren@ride.ri.gov) at 222-8454 or Linda A. Jzyk (Linda.Jzyk@ride.ri.gov) at 222-8473.

<p style="text-align: center;">Field Review of the Draft K-12 Grade Span Expectations (GSEs) in Science</p>
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Directions

- 1) Begin the review process using the field review packet that most closely aligns with the grade level(s) in which you are most familiar. There are three review packets based upon the grade spans that will be used for large-scale assessment (K-4, 5-8, & high school).
- 2) Complete the Reviewer Information form found on page 2.
- 3) Read in the GSE packet “*About the Draft Rhode Island K-12 Grade Span Expectations in Science*” to understand how the draft science GSEs were developed and to familiarize yourself with the format of the document and the relationships between the Statements of Enduring Knowledge (EK), the state Assessment Targets, the Unifying Themes, the cross-grade span Stems and the GSEs.
- 4) Review **Appendix A: GSE Development in Science** for greater understanding of the nature of the science GSEs including the criteria for their design.
- 5) Read the following questions which form the basis for this field review document:
 - Question 1: *Is the GSE articulated in a way that it is clear what is expected of classroom instruction/curriculum and state assessment?*
 - Question 2: *Are the differences between the GSEs of adjacent grade spans clear? They should show the appropriate developmental growth as they progress K - high school.*
 - Question 3: *Is the GSE more rigorous, similar to, or less rigorous than what is presently expected in your school’s science program at that grade span?*
 - Question 4: *Does the set of GSEs within each Statement of Enduring Knowledge have the potential to promote coherent instruction? First, is each individual GSE coherent with the Statement of Enduring Knowledge under which it is listed? Second, as a whole, do these GSEs articulate well-balanced coverage of the major concepts within the EK statement? How could they be improved?*
 - Question 5: *What science content (important concepts) is missing in these draft science GSEs? Where are there gaps in content? This information is most essential for developing the science GSEs for local curriculum, instruction and assessment.*
- 6) Locate the grade span you are reviewing in the GSE document. Notice that the GSEs listed in the review packet are detailed, in order, by domain, then by Statement of Enduring Knowledge, and finally by the corresponding assessment target. To help specify the GSE on the review packet the initial portion of the GSE, as listed in the GSE document, has been written next to the GSE number in the review packet.
- 7) Work through questions 1, 2, and 3 for each GSE within that grade span. Then answer question 4 about the set of GSEs within the Statements of Enduring Knowledge. Notice there is a place to code a response to each question and a place to provide comments.

<p align="center">Rhode Island K-12 Grade Span Expectations in Science – Field Review Reviewer Information</p>
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Name _____

District/Organization: _____

School _____ **or Other** _____

Position: _____

Grade level and or course(s) you are teaching

Number of years in that position _____

Certification(s) _____

E-mail Address: _____

Science Curriculum/textbook used for instruction

Participation on other district and statewide teams (e.g. Science GSE development team, district curriculum committee, school improvement team, peer review team)

Question # 1: Clarity of GSE

Is the GSE articulated in a way that it is clear what is expected of classroom instruction/curriculum and state assessment? (Do I understand what learning will be assessed on the state assessment and the related curricular and/or instructional aspects?) If not, what aspect of the GLE needs further clarification? (E.g. clarify terminology, give examples, etc.)

LS1 - All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, & species).

LS1 (5-8) – INQ+ SAE- 1 Using data and observations about the biodiversity of an ecosystem make predictions or draw conclusions about how the diversity contributes to the stability of the ecosystem.

Comments

GSEs	Curriculum/ Instruction	State Assessment
LS1 (5-6) –1a recognizing that organisms	<input type="radio"/>	<input type="radio"/>
LS1 (7-8) –1a giving examples of adaptations...	<input type="radio"/>	<input type="radio"/>
LS1 (7-8) –1b explaining how organisms with	<input type="radio"/>	<input type="radio"/>

LS1 (5-8) SAE+FAF – 2 Describe or compare how different organisms have mechanisms that work in a coordinated way to obtain energy, grow, move, respond, provide defense, enable reproduction, or maintain internal balance (e.g., cells, tissues, organs and systems).

Comments

GSEs	Curriculum/ Instruction	State Assessment
LS1 (5-6)-2a describing structures or...	<input type="radio"/>	<input type="radio"/>
LS1 (7-8)-2a explaining how the cell, as the...	<input type="radio"/>	<input type="radio"/>
LS1 (7-8)-2b observing and describing...	<input type="radio"/>	<input type="radio"/>
LS1 (7-8)-2c observing, describing...	<input type="radio"/>	<input type="radio"/>

LS1 (5-8) POC –3 Compare and contrast sexual reproduction with asexual reproduction.

Comments

GSEs	Curriculum/ Instruction	State Assessment
LS1 (5-6) –3a defining reproduction as a...	<input type="radio"/>	<input type="radio"/>
LS1 (5-6) –3b describing reproduction in...	<input type="radio"/>	<input type="radio"/>
LS1 (5-6) –3c investigating and comparing a...	<input type="radio"/>	<input type="radio"/>
LS1 (7-8)-3a explaining reproduction as a...	<input type="radio"/>	<input type="radio"/>
LS1 (7-8)-3b describing forms of asexual...	<input type="radio"/>	<input type="radio"/>
LS1 (7-8)-3c describing sexual reproduction...	<input type="radio"/>	<input type="radio"/>

LS1 (5-8) FAF –4 Explain relationships between or among the structure and function of the cells, tissues, organs, and organ systems in an organism.

Comments

GSEs	Curriculum/ Instruction	State Assessment
LS1 (5-6)-4a identifying cells as the building...	<input type="radio"/>	<input type="radio"/>
LS1 (5-6)-4b recognizing and illustrating...	<input type="radio"/>	<input type="radio"/>
LS1 (5-6)-4a explaining that specialized...	<input type="radio"/>	<input type="radio"/>
LS1 (7-8)-4b comparing individual cells...	<input type="radio"/>	<input type="radio"/>
LS1 (7-8)-4c explaining how each type of...	<input type="radio"/>	<input type="radio"/>

LS2 - Matter cycles and energy flows through an ecosystem.

LS2 (5-8) INQ+SAE –5 Using data and observations, predict outcomes when abiotic/biotic factors are changed in an ecosystem.

Comments

GSEs	Curriculum/ Instruction	State Assessment
LS2 (5-6) -5a identifying and defining an...	<input type="radio"/>	<input type="radio"/>
LS2 (7-8)-5a identifying which biotic...	<input type="radio"/>	<input type="radio"/>
LS2 (7-8)-5b analyzing how biotic and...	<input type="radio"/>	<input type="radio"/>
LS2 (7-8)-5c predicting the outcome of a...	<input type="radio"/>	<input type="radio"/>
LS2 (7-8)-5d using a visual model (e.g., graph)...	<input type="radio"/>	<input type="radio"/>

Question # 1: Clarity of GSE

Is the GSE articulated in a way that it is clear what is expected of classroom instruction/curriculum and state assessment? (Do I understand what learning will be assessed on the state assessment and the related curricular and/or instructional aspects?) If not, what aspect of the GLE needs further clarification? (E.g. clarify terminology, give examples, etc.)

LS2 - Matter cycles and energy flows through an ecosystem.

<i>LS2 (5-8) SAE- 6 Given a scenario trace the flow of energy through an ecosystem, beginning with the sun, through organisms in the food web, and into the environment (includes photosynthesis and respiration).</i>			Comments
GSEs	Curriculum/ Instruction	State Assessment	
LS2 (5-6)–6a identifying the sun as the major...	<input type="radio"/>	<input type="radio"/>	
LS2 (5-6)–6b sequencing the energy flow...	<input type="radio"/>	<input type="radio"/>	
LS2 (5-6)–6c describing the basic processes...	<input type="radio"/>	<input type="radio"/>	
LS2 (7-8)–6a explaining the transfer of the...	<input type="radio"/>	<input type="radio"/>	
LS2 (7-8)–6b describing the basic processes...	<input type="radio"/>	<input type="radio"/>	
LS2 (7-8)– 6c explaining the relationship...	<input type="radio"/>	<input type="radio"/>	
LS2 (7-8)–6d creating or interpreting a model...	<input type="radio"/>	<input type="radio"/>	

<i>LS2 (5-8) SAE-7 Given an ecosystem, trace how matter cycles among and between organisms and the physical environment (includes water, oxygen, food web, decomposition, recycling but not carbon cycle or nitrogen cycle).</i>			Comments
GSEs	Curriculum/ Instruction	State Assessment	
LS2 (5-6)–7a explaining the processes of ...	<input type="radio"/>	<input type="radio"/>	
LS2 (5-6)–7b completing a basic food web for...	<input type="radio"/>	<input type="radio"/>	
LS2 (7-8)–7a diagramming or sequencing a...	<input type="radio"/>	<input type="radio"/>	
LS2 (7-8)–7b developing a model for a food ...	<input type="radio"/>	<input type="radio"/>	
LS2 (7-8)–7c explaining the inverse nature...	<input type="radio"/>	<input type="radio"/>	
LS2 (7-8)–7d conducting a controlled...	<input type="radio"/>	<input type="radio"/>	

LS3 - Groups of organisms show evidence of change over time (structures, behaviors, and biochemistry).

<i>LS3 (5-8) MAS+FAF – 8 Use a model, classification system, or dichotomous key to illustrate, compare, or interpret possible relationships among groups of organisms (e.g., internal and external structures, anatomical features).</i>			Comments
GSEs	Curriculum/ Instruction	State Assessment	
LS3 (5-6)–8a stating the value of, or reasons for...	<input type="radio"/>	<input type="radio"/>	
LS3 (5-6)–8b following a taxonomic key to...	<input type="radio"/>	<input type="radio"/>	
LS3 (7-8)–8a sorting organisms with similar...	<input type="radio"/>	<input type="radio"/>	
LS3 (7-8)–8b explaining how species with...	<input type="radio"/>	<input type="radio"/>	
LS3 (7-8)–8c recognizing the classification...	<input type="radio"/>	<input type="radio"/>	

<i>LS3 (5-8) POC-9 Cite examples supporting the concept that certain traits of organisms may provide a survival advantage in a specific environment and therefore, an increased likelihood to produce offspring.</i>			Comments
GSEs	Curriculum/ Instruction	State Assessment	
LS3 (5-6)–9a explaining how a population's...	<input type="radio"/>	<input type="radio"/>	
LS3 (5-6)–9b researching or reporting on...	<input type="radio"/>	<input type="radio"/>	
LS3 (5-6)–9c explaining how fossil evidence...	<input type="radio"/>	<input type="radio"/>	
LS3 (7-8)–9a explaining that genetic...	<input type="radio"/>	<input type="radio"/>	
LS3 (7-8)–9b gathering evidence that...	<input type="radio"/>	<input type="radio"/>	
LS3 (7-8)–9c differentiating between and...	<input type="radio"/>	<input type="radio"/>	
LS3 (7-8)–9d explaining how natural selection...	<input type="radio"/>	<input type="radio"/>	
LS3 (7-8)–9e describing how scientists'...	<input type="radio"/>	<input type="radio"/>	

Question # 1: Clarity of GSE

Is the GSE articulated in a way that it is clear what is expected of classroom instruction/curriculum and state assessment? (Do I understand what learning will be assessed on the state assessment and the related curricular and/or instructional aspects?) If not, what aspect of the GLE needs further clarification? (E.g. clarify terminology, give examples, etc.)

LS4 - Humans are similar to other species in many ways, and yet are unique among Earth's life forms.

LS4 (5-8) INQ-10 Use data and observations to support the concept that environmental or biological factors affect human body systems (biotic & abiotic).

Comments

GSEs	Curriculum/ Instruction	State Assessment
LS4 (5-6)-10a <u>identifying the biotic factors...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (5-6)-10b <u>identifying the abiotic factors...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (5-6)-10c <u>identifying the biotic...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-10a <u>predicting and explaining the...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-10b <u>predicting and explaining the...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-10c <u>researching and reporting on...</u>	<input type="radio"/>	<input type="radio"/>

LS4 (5-8) INQ+POC-11 Using data provided, select evidence that supports the concept that genetic information is passed on from both parents to offspring.

GSEs	Curriculum/ Instruction	State Assessment
LS4 (5-6)-11a <u>differentiating between...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (5-6)-11b <u>observing, recording and...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-11a <u>tracing a genetic characteristic...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (5-6)-11c <u>identifying that genetic material...</u>	<input type="radio"/>	<input type="radio"/>

LS4 (5-8) POC-12 Describe the major changes that occur over time in human development from single cell through embryonic development to new born (i.e., trimesters: 1st – group of cells, 2nd - organs form, 3rd - organs mature

GSEs	Curriculum/ Instruction	State Assessment
LS4 (7-8)-12a <u>identifying and sequencing the...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-12b <u>describing the changes from...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-12c <u>comparing and contrasting...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-12d <u>describing the patterns of...</u>	<input type="radio"/>	<input type="radio"/>

Question # 2: Clarity of Grade Span Differences

Are the differences between the GSEs of adjacent grade spans clear? They should show the appropriate developmental growth as they progress K - high school.

NOTE: In some cases, no differences are articulated between the adjacent (corresponding) GSEs. This may be due to increasing difficulty in some related GSE.

LS1 - All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, & species).

LS1 (5-8) – INQ+ SAE- 1 Using data and observations about the biodiversity of an ecosystem make predictions or draw conclusions about how the diversity contributes to the stability of the ecosystem.

Comments

GSEs	Differences are clear	Differences not clear
LS1 (5-6) –1a recognizing that organisms	<input type="radio"/>	<input type="radio"/>
LS1 (7-8) –1a giving examples of adaptations...	<input type="radio"/>	<input type="radio"/>
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LS1 (5-8) SAE+FAF –2 Describe or compare how different organisms have mechanisms that work in a coordinated way to obtain energy, grow, move, respond, provide defense, enable reproduction, or maintain internal balance (e.g., cells, tissues, organs and systems).

Comments

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LS1 (5-6)-2a describing structures or...	<input type="radio"/>	<input type="radio"/>
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LS1 (5-6) –3c investigating and comparing a...	<input type="radio"/>	<input type="radio"/>
LS1 (7-8)–3a explaining reproduction as a...	<input type="radio"/>	<input type="radio"/>
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LS1 (5-6)–4a explaining that specialized...	<input type="radio"/>	<input type="radio"/>
LS1 (7-8)–4b comparing individual cells...	<input type="radio"/>	<input type="radio"/>
LS1 (7-8)–4c explaining how each type of...	<input type="radio"/>	<input type="radio"/>

LS2 Matter cycles and energy flows through an ecosystem.

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Comments

GSEs	Differences are clear	Differences not clear
LS2 (5-6) –5a identifying and defining an...	<input type="radio"/>	<input type="radio"/>
LS2 (7-8)–5a identifying which biotic...	<input type="radio"/>	<input type="radio"/>
LS2 (7-8)–5b analyzing how biotic and...	<input type="radio"/>	<input type="radio"/>
LS2 (7-8)–5c predicting the outcome of a...	<input type="radio"/>	<input type="radio"/>
LS2 (7-8)–5d using a visual model (e.g., graph)...	<input type="radio"/>	<input type="radio"/>

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LS2 (5-6)–6c describing the basic processes...	<input type="radio"/>	<input type="radio"/>
LS2 (7-8)–6a explaining the transfer of the...	<input type="radio"/>	<input type="radio"/>
LS2 (7-8)–6b describing the basic processes...	<input type="radio"/>	<input type="radio"/>
LS2 (7-8)– 6c explaining the relationship...	<input type="radio"/>	<input type="radio"/>
LS2 (7-8)–6d creating or interpreting a model...	<input type="radio"/>	<input type="radio"/>

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LS2 (7-8)–7c explaining the inverse nature...	<input type="radio"/>	<input type="radio"/>
LS2 (7-8)–7d conducting a controlled...	<input type="radio"/>	<input type="radio"/>

LS3 - Groups of organisms show evidence of change over time (structures, behaviors, and biochemistry).

LS3 (5-8) MAS+FAF – 8 Use a model, classification system, or dichotomous key to illustrate, compare, or interpret possible relationships among groups of organisms (e.g., internal and external structures, anatomical features).

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GSEs	Differences are clear	Differences not clear
LS3 (5-6)–8a stating the value of, or reasons for...	<input type="radio"/>	<input type="radio"/>
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LS3 (7-8)–8a sorting organisms with similar...	<input type="radio"/>	<input type="radio"/>
LS3 (7-8)–8b explaining how species with...	<input type="radio"/>	<input type="radio"/>
LS3 (7-8)–8c recognizing the classification...	<input type="radio"/>	<input type="radio"/>

LS3 (5-8) POC-9 Cite examples supporting the concept that certain traits of organisms may provide a survival advantage in a specific environment and therefore, an increased likelihood to produce offspring.

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LS3 (7-8)–9a explaining that genetic...	<input type="radio"/>	<input type="radio"/>
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LS4 (5-8) INQ-10 Use data and observations to support the concept that environmental or biological factors affect human body systems (biotic & abiotic).

Comments

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LS4 (5-6)-10a <u>identifying the biotic factors...</u>	<input type="radio"/>	<input type="radio"/>
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LS4 (5-6)-10c <u>identifying the biotic...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-10a <u>predicting and explaining the...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-10b <u>predicting and explaining the...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-10c <u>researching and reporting on...</u>	<input type="radio"/>	<input type="radio"/>

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LS4 (5-6)-11b <u>observing, recording and...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-11a <u>recognizing that characteristics...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (5-6)-11b <u>tracing a genetic characteristic...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (5-6)-11c <u>identifying that genetic material...</u>	<input type="radio"/>	<input type="radio"/>

LS4 (5-8) POC-12 Describe the major changes that occur over time in human development from single cell through embryonic development to new born (i.e., trimesters: 1st – group of cells, 2nd - organs form, 3rd - organs mature

GSEs	Differences are clear	Differences not clear
LS4 (7-8)-12a <u>identifying and sequencing the...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-12b <u>describing the changes from...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-12c <u>comparing and contrasting...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-12d <u>describing the patterns of...</u>	<input type="radio"/>	<input type="radio"/>

Question 3: Expected Rigor

Is the GSE more rigorous, similar to, or less rigorous than what is presently expected in your school's science program at that grade span?

LS1 - All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, & species).

LS1 (5-8) – INQ+ SAE- 1 Using data and observations about the biodiversity of an ecosystem make predictions or draw conclusions about how the diversity contributes to the stability of the ecosystem.

Comments

GSEs	More Rigorous	As Rigorous	Less Rigorous
LS1 (5-6) –1a recognizing that organisms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS1 (7-8) –1a giving examples of adaptations...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS1 (7-8) –1b explaining how organisms with	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

LS1 (5-8) SAE+FAF –2 Describe or compare how different organisms have mechanisms that work in a coordinated way to obtain energy, grow, move, respond, provide defense, enable reproduction, or maintain internal balance (e.g., cells, tissues, organs and systems).

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LS1 (7-8)-2a explaining how the cell, as the...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS1 (7-8)-2b observing and describing...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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Comments

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LS1 (5-6) –3b describing reproduction in...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS1 (5-6) –3c investigating and comparing a...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS1 (7-8) –3a explaining reproduction as a...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS1 (7-8) –3b describing forms of asexual...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS1 (7-8) –3c describing sexual reproduction...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

LS1 (5-8) FAF –4 Explain relationships between or among the structure and function of the cells, tissues, organs, and organ systems in an organism.

Comments

GSEs	More Rigorous	As Rigorous	Less Rigorous
LS1 (5-6) –4a identifying cells as the building...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS1 (5-6) –4b recognizing and illustrating...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS1 (5-6) –4a explaining that specialized...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS1 (7-8) –4b comparing individual cells...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS1 (7-8) –4c explaining how each type of...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

LS2 - Matter cycles and energy flows through an ecosystem.

LS2 (5-8) INQ+SAE –5 Using data and observations, predict outcomes when abiotic/biotic factors are changed in an ecosystem.

Comments

GSEs	More Rigorous	As Rigorous	Less Rigorous
LS2 (5-6) –5a identifying and defining an...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS2 (7-8) –5a identifying which biotic...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS2 (7-8) –5b analyzing how biotic and...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS2 (7-8) –5c predicting the outcome of a...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS2 (7-8) –5d using a visual model (e.g., graph)...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question 3: Expected Rigor

Is the GSE more rigorous, similar to, or less rigorous than what is presently expected in your school's science program at that grade span?

LS2 - Matter cycles and energy flows through an ecosystem.

LS2 (5-8) SAE- 6 Given a scenario trace the flow of energy through an ecosystem, beginning with the sun, through organisms in the food web, and into the environment (includes photosynthesis and respiration)

Comments

GSEs	More Rigorous	As Rigorous	Less Rigorous
LS2 (5-6)-6a identifying the sun as the major...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS2 (5-6)-6b sequencing the energy flow...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS2 (5-6)-6c describing the basic processes...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS2 (7-8)-6a explaining the transfer of the...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS2 (7-8)-6b describing the basic processes...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS2 (7-8)- 6c explaining the relationship...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS2 (7-8)-6d creating or interpreting a model...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

LS2 (5-8) SAE-7 Given an ecosystem, trace how matter cycles among and between organisms and the physical environment (includes water, oxygen, food web, decomposition, recycling but not carbon cycle or nitrogen cycle).

Comments

GSEs	More Rigorous	As Rigorous	Less Rigorous
LS2 (5-6)-7a explaining the processes of ...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS2 (5-6)-7b completing a basic food web for...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS2 (7-8)-7a diagramming or sequencing a...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS2 (7-8)-7b developing a model for a food ...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS2 (7-8)-7c explaining the inverse nature...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS2 (7-8)-7d conducting a controlled...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

LS3 - Groups of organisms show evidence of change over time (structures, behaviors, and biochemistry).

LS3 (5-8) MAS+FAF – 8 Use a model, classification system, or dichotomous key to illustrate, compare, or interpret possible relationships among groups of organisms (e.g., internal and external structures, anatomical features)

Comments

GSEs	More Rigorous	As Rigorous	Less Rigorous
LS3 (5-6)-8a stating the value of, or reasons for...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS3 (5-6)-8b following a taxonomic key to...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS3 (7-8)-8a sorting organisms with similar...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS3 (7-8)-8b explaining how species with...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS3 (7-8)-8c recognizing the classification...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

LS3 (5-8) POC-9 Cite examples supporting the concept that certain traits of organisms may provide a survival advantage in a specific environment and therefore, an increased likelihood to produce offspring

Comments

GSEs	More Rigorous	As Rigorous	Less Rigorous
LS3 (5-6)-9a explaining how a population's...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS3 (5-6)-9b researching or reporting on...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS3 (5-6)-9c explaining how fossil evidence...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS3 (7-8)-9a explaining that genetic...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS3 (7-8)-9b gathering evidence that...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS3 (7-8)-9c differentiating between and...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS3 (7-8)-9d explaining how natural selection...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS3 (7-8)-9e describing how scientists'...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question 3: Expected Rigor

Is the GSE more rigorous, similar to, or less rigorous than what is presently expected in your school's science program at that grade span?

LS4 - Humans are similar to other species in many ways, and yet are unique among Earth's life forms.

LS4 (5-8) INQ-10 Use data and observations to support the concept that environmental or biological factors affect human body systems (biotic & abiotic).

Comments

GSEs	More Rigorous	As Rigorous	Less Rigorous
LS4 (5-6)-10a <u>identifying the biotic factors...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS4 (5-6)-10b <u>identifying the abiotic factors...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS4 (5-6)-10c <u>identifying the biotic...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-10a <u>predicting and explaining the...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-10b <u>predicting and explaining the...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-10c <u>researching and reporting on...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

LS4 (5-8) INQ+POC-11 Using data provided, select evidence that supports the concept that genetic information is passed on from both parents to offspring.

GSEs	More Rigorous	As Rigorous	Less Rigorous
LS4 (5-6)-11a <u>differentiating between...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS4 (5-6)-11b <u>observing, recording and...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-11a <u>recognizing that characteristics...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS4 (5-6)-11b <u>tracing a genetic characteristic...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS4 (5-6)-11c <u>identifying that genetic material...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

LS4 (5-8) POC-12 Describe the major changes that occur over time in human development from single cell through embryonic development to new born (i.e., trimesters: 1st – group of cells, 2nd - organs form, 3rd - organs mature.

GSEs	More Rigorous	As Rigorous	Less Rigorous
LS4 (7-8)-12a <u>identifying and sequencing the...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-12b <u>describing the changes from...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-12c <u>comparing and contrasting...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-12d <u>describing the patterns of...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question # 4: Does the set of GSEs within each Statement of Enduring Knowledge have the potential to promote coherent instruction? First, is each individual GSE coherent with the Statement of Enduring Knowledge under which it is listed? Second, as a whole, do these GSEs articulate well-balanced coverage of the major concepts within the EK statement? How could they be improved?

Go back and review ALL the GSEs *within* the Statement of Enduring Knowledge looking at them as a “GSE set.” Does the set of GSEs *within* this statement of enduring knowledge have the potential to promote coherent instruction?

LS1 - All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, & species).		GSEs for this EK Statement coherent as a set		
		Yes	No	
LS1 (5-8) – INQ+ SAE- 1 <i>Using data and observations about the biodiversity of an ecosystem make predictions or draw conclusions about how the diversity contributes to the stability of the ecosystem.</i>		Comments		
GSEs	Individual coherence with the Statement of Enduring Knowledge			
	Yes			No
LS1 (5-6) –1a recognizing that organisms LS1 (7-8) –1a giving examples of adaptations... LS1 (7-8) –1b explaining how organisms with	<input type="radio"/> <input type="radio"/> <input type="radio"/>			<input type="radio"/> <input type="radio"/> <input type="radio"/>
LS1 (5-8) SAE+FAF – 2 <i>Describe or compare how different organisms have mechanisms that work in a coordinated way to obtain energy, grow, move, respond, provide defense, enable reproduction, or maintain internal balance (e.g., cells, tissues, organs and systems).</i>		Comments		
GSEs	Individual coherence with the Statement of Enduring Knowledge			
	Yes			No
LS1 (5-6)-2a describing structures or... LS1 (7-8)–2a explaining how the cell, as the... LS1 (7-8)–2b observing and describing... LS1 (7-8)–2c observing, describing...	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>			<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
LS1 (5-8) POC – 3 <i>Compare and contrast sexual reproduction with asexual reproduction.</i>		Comments		
GSEs	Individual coherence with the Statement of Enduring Knowledge			
	Yes			No
LS1 (5-6) –3a defining reproduction as a... LS1 (5-6) –3b describing reproduction in... LS1 (5-6) –3c investigating and comparing a... LS1 (7-8)–3a explaining reproduction as a... LS1 (7-8)–3b describing forms of asexual... LS1 (7-8)–3c describing sexual reproduction...	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>			<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
LS1 (5-8) FAF – 4 <i>Explain relationships between or among the structure and function of the cells, tissues, organs, and organ systems in an organism.</i>		Comments		
GSEs	Individual coherence with the Statement of Enduring Knowledge			
	Yes			No
LS1 (5-6)–4a identifying cells as the building... LS1 (5-6)–4b recognizing and illustrating... LS1 (5-6)–4a explaining that specialized... LS1 (7-8)–4b comparing individual cells... LS1 (7-8)–4c explaining how each type of...	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>			<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
LS2 - Matter cycles and energy flows through an ecosystem.		GSEs for this EK Statement coherent as a set		
		Yes	No	
LS2 (5-8) INQ+SAE – 5 <i>Using data and observations, predict outcomes when abiotic/biotic factors are changed in an ecosystem.</i>		Comments		
GSEs	Individual coherence with the Statement of Enduring Knowledge			
	Yes			No
LS2 (5-6) -5a identifying and defining an... LS2 (7-8)–5a identifying which biotic... LS2 (7-8)–5b analyzing how biotic and... LS2 (7-8)–5c predicting the outcome of a... LS2 (7-8)–5d using a visual model (e.g., graph)... ...	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>			<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>

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LS2 Matter cycles and energy flows through an ecosystem.			GSEs for this EK Statement coherent as a set see section above																			
LS2 (5-8) SAE-6 <i>Given a scenario trace the flow of energy through an ecosystem, beginning with the sun, through organisms in the food web, and into the environment (includes photosynthesis and respiration)</i>			Comments																			
GSEs	Individual coherence with the Statement of Enduring Knowledge <table border="1"> <thead> <tr> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </tbody> </table>		Yes	No	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>				
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LS2 (5-6)–6a identifying the sun as the major... LS2 (5-6)–6b sequencing the energy flow... LS2 (5-6)–6c describing the basic processes... LS2 (7-8)–6a explaining the transfer of the... LS2 (7-8)–6b describing the basic processes... LS2 (7-8)–6c explaining the relationship... LS2 (7-8)–6d creating or interpreting a model...																						
LS2 (5-8) SAE-7 <i>Given an ecosystem, trace how matter cycles among and between organisms and the physical environment (includes water, oxygen, food web, decomposition, recycling but not carbon cycle or nitrogen cycle).</i>			Comments																			
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LS2 (5-6)–7a explaining the processes of ... LS2 (5-6)–7b completing a basic food web for... LS2 (7-8)–7a diagramming or sequencing a... LS2 (7-8)–7b developing a model for a food... LS2 (7-8)–7c explaining the inverse nature... LS2 (7-8)–7d conducting a controlled...																						
LS3 - Groups of organisms show evidence of change over time (structures, behaviors, and biochemistry).			GSEs for this EK Statement coherent as a set																			
			Yes <input type="radio"/>	No <input type="radio"/>																		
LS3 (5-8) MAS+FAF – 8 <i>Use a model, classification system, or dichotomous key to illustrate, compare, or interpret possible relationships among groups of organisms (e.g., internal and external structures, anatomical features)</i>			Comments																			
GSEs	Individual coherence with the Statement of Enduring Knowledge <table border="1"> <thead> <tr> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </tbody> </table>		Yes	No	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>								
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LS3 (5-6)–8a stating the value of, or reasons for... LS3 (5-6)–8b following a taxonomic key to... LS3 (7-8)–8a sorting organisms with similar... LS3 (7-8)–8b explaining how species with... LS3 (7-8)–8c recognizing the classification...																						
LS3 (5-8) POC-9 <i>Cite examples supporting the concept that certain traits of organisms may provide a survival advantage in a specific environment and therefore, an increased likelihood to produce offspring</i>			Comments																			
GSEs	Individual coherence with the Statement of Enduring Knowledge <table border="1"> <thead> <tr> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </tbody> </table>		Yes	No	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
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LS3 (5-6)–9a explaining how a population's... LS3 (5-6)–9b researching or reporting on... LS3 (5-6)–9c explaining how fossil evidence... LS3 (7-8)–9a explaining that genetic... LS3 (7-8)–9b gathering evidence that... LS3 (7-8)–9c differentiating between and... LS3 (7-8)–9d explaining how natural selection... LS3 (7-8)–9e describing how scientists'...																						

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LS2 Matter cycles and energy flows through an ecosystem.			GSEs for this EK Statement coherent as a set see section above	
LS2 (5-8) SAE- 6 <i>Given a scenario trace the flow of energy through an ecosystem, beginning with the sun, through organisms in the food web, and into the environment (includes photosynthesis and respiration)</i>			Comments	
GSEs	Individual coherence with the Statement of Enduring Knowledge			
	Yes	No		
LS2 (5-6)–6a identifying the sun as the major...	<input type="radio"/>	<input type="radio"/>		
LS2 (5-6)–6b sequencing the energy flow...	<input type="radio"/>	<input type="radio"/>		
LS2 (5-6)–6c describing the basic processes...	<input type="radio"/>	<input type="radio"/>		
LS2 (7-8)–6a explaining the transfer of the...	<input type="radio"/>	<input type="radio"/>		
LS2 (7-8)–6b describing the basic processes...	<input type="radio"/>	<input type="radio"/>		
LS2 (7-8)– 6c explaining the relationship...	<input type="radio"/>	<input type="radio"/>		
LS2 (7-8)–6d creating or interpreting a model...	<input type="radio"/>	<input type="radio"/>		
LS2 (5-8) SAE-7 <i>Given an ecosystem, trace how matter cycles among and between organisms and the physical environment (includes water, oxygen, food web, decomposition, recycling but not carbon cycle or nitrogen cycle).</i>			Comments	
GSEs	Individual coherence with the Statement of Enduring Knowledge			
	Yes	No		
LS2 (5-6)–7a explaining the processes of ...	<input type="radio"/>	<input type="radio"/>		
LS2 (5-6)–7b completing a basic food web for...	<input type="radio"/>	<input type="radio"/>		
LS2 (7-8)–7a diagramming or sequencing a...	<input type="radio"/>	<input type="radio"/>		
LS2 (7-8)–7b developing a model for a food ...	<input type="radio"/>	<input type="radio"/>		
LS2 (7-8)–7c explaining the inverse nature...	<input type="radio"/>	<input type="radio"/>		
LS2 (7-8)–7d conducting a controlled...	<input type="radio"/>	<input type="radio"/>		
LS3 - Groups of organisms show evidence of change over time (structures, behaviors, and biochemistry).			GSEs for this EK Statement coherent as a set	
			Yes	No
LS3 (5-8) MAS+FAF – 8 <i>Use a model, classification system, or dichotomous key to illustrate, compare, or interpret possible relationships among groups of organisms (e.g., internal and external structures, anatomical features).</i>			Comments	
GSEs	Individual coherence with the Statement of Enduring Knowledge			
	Yes	No		
LS3 (5-6)–8a stating the value of, or reasons for...	<input type="radio"/>	<input type="radio"/>		
LS3 (5-6)–8b following a taxonomic key to...	<input type="radio"/>	<input type="radio"/>		
LS3 (7-8)–8a sorting organisms with similar...	<input type="radio"/>	<input type="radio"/>		
LS3 (7-8)–8b explaining how species with...	<input type="radio"/>	<input type="radio"/>		
LS3 (7-8)–8c recognizing the classification...	<input type="radio"/>	<input type="radio"/>		
LS3 (5-8) POC-9 <i>Cite examples supporting the concept that certain traits of organisms may provide a survival advantage in a specific environment and therefore, an increased likelihood to produce offspring.</i>			Comments	
GSEs	Individual coherence with the Statement of Enduring Knowledge			
	Yes	No		
LS3 (5-6)–9a explaining how a population’s...	<input type="radio"/>	<input type="radio"/>		
LS3 (5-6)–9b researching or reporting on...	<input type="radio"/>	<input type="radio"/>		
LS3 (5-6)–9c explaining how fossil evidence...	<input type="radio"/>	<input type="radio"/>		
LS3 (7-8)–9a explaining that genetic...	<input type="radio"/>	<input type="radio"/>		
LS3 (7-8)–9b gathering evidence that...	<input type="radio"/>	<input type="radio"/>		
LS3 (7-8)–9c differentiating between and...	<input type="radio"/>	<input type="radio"/>		
LS3 (7-8)–9d explaining how natural selection...	<input type="radio"/>	<input type="radio"/>		
LS3 (7-8)–9e describing how scientists’ ...	<input type="radio"/>	<input type="radio"/>		

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Go back and review ALL the GSEs *within* the Statement of Enduring Knowledge looking at them as a “GSE set.” Does the set of GSEs *within* this statement of enduring knowledge have the potential to promote coherent instruction?

LS4 - Humans are similar to other species in many ways, and yet are unique among Earth’s life forms.

GSEs for this EK Statement coherent as a set

Yes ☐ No ☐

LS4 (5-8) INQ-10 Use data and observations to support the concept that environmental or biological factors affect human body systems (biotic & abiotic).

Comments

GSEs	Individual coherence with the Statement of Enduring Knowledge	
	Yes	No
LS4 (5-6)-10a <u>identifying the biotic factors...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (5-6)-10b <u>identifying the abiotic factors...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (5-6)-10c <u>identifying the biotic...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-10a <u>predicting and explaining the...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-10b <u>predicting and explaining the...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-10c <u>researching and reporting on...</u>	<input type="radio"/>	<input type="radio"/>

LS4 (5-8) INQ+POC-11 Using data provided, select evidence that supports the concept that genetic information is passed on from both parents to offspring.

GSEs	Individual coherence with the Statement of Enduring Knowledge	
	Yes	No
LS4 (5-6)-11a <u>differentiating between ...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (5-6)-11b <u>observing, recording and ...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-11a <u>recognizing that characteristics...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (5-6)-11b <u>tracing a genetic characteristic...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (5-6)-11c <u>identifying that genetic material...</u>	<input type="radio"/>	<input type="radio"/>

LS4 (5-8) POC-12 Describe the major changes that occur over time in human development from single cell through embryonic development to new born (i.e., trimesters: 1st – group of cells, 2nd - organs form, 3rd - organs mature.

GSEs	Individual coherence with the Statement of Enduring Knowledge	
	Yes	No
LS4 (7-8)-12a <u>identifying and sequencing the...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-12b <u>describing the changes from ...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-12c <u>comparing and contrasting...</u>	<input type="radio"/>	<input type="radio"/>
LS4 (7-8)-12d <u>describing the patterns of ...</u>	<input type="radio"/>	<input type="radio"/>

Question # 1: Clarity of GSE

Is the GSE articulated in a way that it is clear what is expected of classroom instruction/curriculum and state assessment? (Do I understand what learning will be assessed on the state assessment and the related curricular and/or instructional aspects?) If not, what aspect of the GLE needs further clarification? (E.g. clarify terminology, give examples, etc.)

PS1 - All living and nonliving things are composed of matter having characteristic properties that distinguish one substance from another (independent of size or amount of substance)

PS1 (5-8) INQ-1 Investigate the relationships among mass, volume and density.

Comments

GSEs	Curriculum/ Instruction	State Assessment
PS1 (5-6) –1a <u>comparing the masses of...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)–1a <u>measuring mass and volume...</u>	<input type="radio"/>	<input type="radio"/>

PS1 (5-8) INQ+POC –2 Given data about characteristic properties of matter (e.g., melting and boiling points, density, solubility) identify, compare, or classify different substances.

Comments

GSEs	Curriculum/ Instruction	State Assessment
PS1 (5-6)–2a <u>recognizing that different...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (5-6)–2b <u>classifying and comparing...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)–2a <u>identifying an unknown...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)–2b <u>classifying and comparing...</u>	<input type="radio"/>	<input type="radio"/>

PS1 (5-8) INQ+ SAE –3 Collect data or use data provided to infer or predict that the total amount of mass in a closed system stays the same, regardless of how substances interact (conservation of matter)

Comments

GSEs	Curriculum/ Instruction	State Assessment
PS1 (5-6)– 3a <u>explaining that regardless...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)–3a <u>citing evidence to conclude...</u>	<input type="radio"/>	<input type="radio"/>

PS1 (5-8) SAE+MAS – 4 Represent or explain the relationship between or among energy, molecular motion, temperature, and states of matter.

Comments

GSEs	Curriculum/ Instruction	State Assessment
PS1 (5-6)–4a <u>differentiating among the...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (5-6)–4b <u>predicting the effects of...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)–4a <u>constructing models that...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)–4b <u>explaining the effect of...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)– 4c <u>observing the physical...</u>	<input type="radio"/>	<input type="radio"/>

PS1 (5-8) MAS –5 Given graphic or written information, classify matter as atom/molecule or element/compound (Not the structure of an atom).

Comments

GSEs	Curriculum/ Instruction	State Assessment
PS1 (5-6)– 5a <u>distinguishing between solutions...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)– 5a <u>using models or diagrams to...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)– 5b <u>classifying elements and...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)– 5c <u>interpreting the symbols and...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)– 5d <u>using symbols and chemical...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)– 5e <u>explaining that when...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)– 5f <u>explaining that when...</u>	<input type="radio"/>	<input type="radio"/>

PS2 - Energy is necessary for change to occur in matter. Energy can be stored, transferred, and transformed, but cannot be destroyed.

PS2 (5-8)-SAE+ POC- 6 Given a real-world example, show that within a system, energy transforms from one form to another (i.e., chemical, heat, electrical, gravitational, light, sound, mechanical).

Comments

GSEs	Curriculum/ Instruction	State Assessment
PS2 (5-6)–6a <u>differentiating among the...</u>	<input type="radio"/>	<input type="radio"/>
PS2 (5-6)–6b <u>explaining how energy may...</u>	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)- 6a <u>using a real world example...</u>	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–6b <u>constructing a model to...</u>	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–6c <u>explaining that while energy...</u>	<input type="radio"/>	<input type="radio"/>

Question # 1: Clarity of GSE

Is the GSE articulated in a way that it is clear what is expected of classroom instruction/curriculum and state assessment? (Do I understand what learning will be assessed on the state assessment and the related curricular and/or instructional aspects?) If not, what aspect of the GLE needs further clarification? (E.g. clarify terminology, give examples, etc.)

PS2 - Energy is necessary for change to occur in matter. Energy can be stored, transferred, and transformed, but cannot be destroyed.

PS2 (5-8) INQ+SAE+POC – 7 Use data to draw conclusions about how heat can be transferred (convection, conduction, radiation).

Comments

GSEs	Curriculum/ Instruction	State Assessment
PS2 (5-6)–7a <u>identifying</u> real world...	<input type="radio"/>	<input type="radio"/>
PS2 (5-6)–7b <u>describing</u> sound as the...	<input type="radio"/>	<input type="radio"/>
PS2 (5-6)–7c <u>showing</u> that electric...	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–7a <u>designing</u> a diagram, model,...	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–7b <u>explaining</u> the difference...	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–7c <u>representing</u> in words,...	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–7d <u>describing</u> the effect of...	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–7e <u>differentiating</u> between...	<input type="radio"/>	<input type="radio"/>

PS3 - The motion of an object is affected by forces.

PS3 (5-8) INQ+ POC –8 Use data to determine or predict the overall (net effect of multiple forces (e.g., friction, gravitational, magnetic) on the position, speed, and direction of motion of objects.

Comments

GSEs	Curriculum/ Instruction	State Assessment
PS3 (5-6)–8a using data or graphs to...	<input type="radio"/>	<input type="radio"/>
PS3 (5-6)–8b recognizing that a force is a...	<input type="radio"/>	<input type="radio"/>
PS3 (5-6)–8c <u>explaining</u> that <u>changes</u> in...	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8a <u>measuring</u> distance and time ...	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8b <u>solving</u> for any <u>unknown</u> in...	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8c differentiating among <u>speed</u> ...	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8d testing predictions on how...	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8e describing or graphically...	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8f <u>differentiating</u> between <u>mass</u>	<input type="radio"/>	<input type="radio"/>

Question # 2: Clarity of Grade Span Differences

Are the differences between the GSEs of adjacent grade spans clear? They should show the appropriate developmental growth as they progress K - high school.

NOTE: In some cases, no differences are articulated between the adjacent (corresponding) GSEs. This may be due to increasing difficulty in some related GSE.

PS1 - All living and nonliving things are composed of matter having characteristic properties that distinguish one substance from another (independent of size or amount of substance)

PS1 (5-8) INQ-1 Investigate the relationships among mass, volume and density

Comments

GSEs	Differences are clear	Differences not clear
PS1 (5-6) –1a <u>comparing the masses of...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)–1a <u>measuring mass and volume...</u>	<input type="radio"/>	<input type="radio"/>

PS1 (5-8) INQ+POC –2 Given data about characteristic properties of matter (e.g., melting and boiling points, density, solubility) identify, compare, or classify different substances.

Comments

GSEs	Differences are clear	Differences not clear
PS1 (5-6)–2a <u>recognizing that different...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (5-6)–2b <u>classifying and comparing...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)–2a <u>identifying an unknown...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)–2b <u>classifying and comparing...</u>	<input type="radio"/>	<input type="radio"/>

PS1 (5-8) INQ+ SAE –3 Collect data or use data provided to infer or predict that the total amount of mass in a closed system stays the same, regardless of how substances interact (conservation of matter)

Comments

GSEs	Differences are clear	Differences not clear
PS1 (5-6)– 3a <u>explaining that regardless...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)–3a <u>citing evidence to conclude...</u>	<input type="radio"/>	<input type="radio"/>

PS1 (5-8) SAE+MAS – 4

Represent or explain the relationship between or among energy, molecular motion, temperature, and states of matter.

Comments

GSEs	Differences are clear	Differences not clear
PS1 (5-6)–4a <u>differentiating among the...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (5-6)–4b <u>predicting the effects of...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)–4a <u>constructing models that...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)–4b <u>explaining the effect of...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)– 4c <u>observing the physical...</u>	<input type="radio"/>	<input type="radio"/>

PS1 (5-8) MAS – 5 Given graphic or written information, classify matter as atom/molecule or element/compound (Not the structure of an atom).

Comments

GSEs	Differences are clear	Differences not clear
PS1 (5-6)– 5a <u>distinguishing between solutions...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)– 5a <u>using models or diagrams to...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)– 5b <u>classifying elements and...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)– 5c <u>interpreting the symbols and...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)– 5d <u>using symbols and chemical...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)– 5e <u>explaining that when...</u>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)– 5f <u>explaining that when...</u>	<input type="radio"/>	<input type="radio"/>

PS2 - Energy is necessary for change to occur in matter. Energy can be stored, transferred, and transformed, but cannot be destroyed.

PS2 (5-8)–SAE+ POC- 6 Given a real-world example, show that within a system, energy transforms from one form to another (i.e., chemical, heat, electrical, gravitational, light, sound, mechanical).

Comments

GSEs	Differences are clear	Differences not clear
PS2 (5-6)–6a <u>differentiating among the...</u>	<input type="radio"/>	<input type="radio"/>
PS2 (5-6)–6b <u>explaining how energy may...</u>	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)– 6a <u>using a real world example...</u>	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–6b <u>constructing a model to...</u>	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–6c <u>explaining that while energy...</u>	<input type="radio"/>	<input type="radio"/>

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PS2 (5-8) INQ+SAE+POC – 7 Use data to draw conclusions about how heat can be transferred (convection, conduction, radiation).

Comments

GSEs	Differences are clear	Differences not clear
PS2 (5-6)–7a <u>identifying</u> real world...	<input type="radio"/>	<input type="radio"/>
PS2 (5-6)–7b <u>describing</u> sound as the...	<input type="radio"/>	<input type="radio"/>
PS2 (5-6)–7c <u>showing</u> that electric...	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–7a <u>designing</u> a diagram, model,...	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–7b <u>explaining</u> the difference...	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–7c <u>representing</u> in words,...	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–7d <u>describing</u> the effect of...	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–7e <u>differentiating</u> between...	<input type="radio"/>	<input type="radio"/>

PS 3 - The motion of an object is affected by forces.

PS3 (5-8) INQ+ POC –8 Use data to determine or predict the overall (net effect of multiple forces (e.g., friction, gravitational, magnetic) on the position, speed, and direction of motion of objects.

Comments

GSEs	Differences are clear	Differences not clear
PS3 (5-6)–8a using data or graphs to...	<input type="radio"/>	<input type="radio"/>
PS3 (5-6)–8b recognizing that a force is a...	<input type="radio"/>	<input type="radio"/>
PS3 (5-6)–8c <u>explaining</u> that changes in...	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8a <u>measuring</u> distance and time...	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8b <u>solving</u> for any unknown in...	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8c <u>differentiating</u> among <u>speed</u> ...	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8d testing predictions on how...	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8e <u>describing</u> or graphically...	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8f <u>differentiating</u> between mass....	<input type="radio"/>	<input type="radio"/>

Question 3: Expected Rigor

Is the GSE more rigorous, similar to, or less rigorous than what is presently expected in your school's science program at that grade span?

PS1 - All living and nonliving things are composed of matter having characteristic properties that distinguish one substance from another (independent of size or amount of substance).

PS1 (5-8) INQ-1 Investigate the relationships among mass, volume and density.

Comments

GSEs	More Rigorous	As Rigorous	Less Rigorous
PS1 (5-6) –1a <u>comparing the masses of...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)–1a <u>measuring mass and volume...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

PS1 (5-8) INQ+POC –2 Given data about characteristic properties of matter (e.g., melting and boiling points, density, solubility) identify, compare, or classify different substances.

Comments

GSEs	More Rigorous	As Rigorous	Less Rigorous
PS1 (5-6)–2a <u>recognizing that different...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS1 (5-6)–2b <u>classifying and comparing...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)–2a <u>identifying an unknown...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)–2b <u>classifying and comparing...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

PS1 (5-8) INQ+ SAE –3 Collect data or use data provided to infer or predict that the total amount of mass in a closed system stays the same, regardless of how substances interact (conservation of matter).

Comments

GSEs	More Rigorous	As Rigorous	Less Rigorous
PS1 (5-6)– 3a <u>explaining that regardless...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)–3a <u>citing evidence to conclude...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

PS1 (5-8) SAE+MAS – 4 Represent or explain the relationship between or among energy, molecular motion, temperature, and states of matter.

Comments

GSEs	More Rigorous	As Rigorous	Less Rigorous
PS1 (5-6)–4a <u>differentiating among the...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS1 (5-6)–4b <u>predicting the effects of...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)–4a <u>constructing models that...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)–4b <u>explaining the effect of...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)– 4c <u>observing the physical...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

PS1 (5-8) MAS –5 Given graphic or written information, classify matter as atom/molecule or element/compound (Not the structure of an atom).

Comments

GSEs	More Rigorous	As Rigorous	Less Rigorous
PS1 (5-6)– 5a <u>distinguishing between solutions...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)– 5a <u>using models or diagrams to...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)– 5b <u>classifying elements and...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)– 5c <u>interpreting the symbols and...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)– 5d <u>using symbols and chemical...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)– 5e <u>explaining that when...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS1 (7-8)– 5f <u>explaining that when...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

PS2 - Energy is necessary for change to occur in matter. Energy can be stored, transferred, and transformed, but cannot be destroyed.

PS2 (5-8)–SAE+ POC- 6 Given a real-world example, show that within a system, energy transforms from one form to another (i.e., chemical, heat, electrical, gravitational, light, sound, mechanical).

Comments

GSEs	More Rigorous	As Rigorous	Less Rigorous
PS2 (5-6)–6a <u>differentiating among the...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS2 (5-6)–6b <u>explaining how energy may...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)– 6a <u>using a real world example...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–6b <u>constructing a model to...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–6c <u>explaining that while energy...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Is the GSE more rigorous, similar to, or less rigorous than what is presently expected in your school's science program at that grade span?

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Comments

GSEs	More Rigorous	As Rigorous	Less Rigorous
PS2 (5-6)–7a identifying real world...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS2 (5-6)–7b describing sound as the...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS2 (5-6)–7c showing that electric...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–7a designing a diagram, model,...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–7b explaining the difference...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–7c representing in words,...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–7d describing the effect of...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–7e differentiating between...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

PS3 - The motion of an object is affected by forces.

PS3 (5-8) INQ+ POC –8 Use data to determine or predict the overall (net effect of multiple forces (e.g., friction, gravitational, magnetic) on the position, speed, and direction of motion of objects.

Comments

GSEs	More Rigorous	As Rigorous	Less Rigorous
PS3 (5-6)–8a using data or graphs to...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS3 (5-6)–8b recognizing that a force is a...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS3 (5-6)–8c explaining that changes in...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8a measuring distance and time ...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8b solving for any unknown in...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8c differentiating among speed...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8d testing predictions on how...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8e describing or graphically...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8f differentiating between mass....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question # 4: Does the set of GSEs within each Statement of Enduring Knowledge have the potential to promote coherent instruction? First, is each individual GSE coherent with the Statement of Enduring Knowledge under which it is listed? Second, as a whole, do these GSEs articulate well-balanced coverage of the major concepts within the EK statement? How could they be improved? Go back and review ALL the GSEs <i>within</i> the Statement of Enduring Knowledge looking at them as a “GSE set.” Does the set of GSEs <i>within</i> this statement of enduring knowledge have the potential to promote coherent instruction?					
PS1 - All living and nonliving things are composed of matter having characteristic properties that distinguish one substance from another (independent of size or amount of substance).			GSEs for this EK Statement coherent as a set		
			Yes <input type="radio"/>	No <input type="radio"/>	
PS1 (5-8) INQ-1 Investigate the relationships among mass, volume and density.			Comments		
GSEs		Individual coherence with the Statement of Enduring Knowledge			
		Yes			No
PS1 (5-6) –1a comparing the masses of...		<input type="radio"/>	<input type="radio"/>		
PS1 (7-8)–1a measuring mass and volume...		<input type="radio"/>	<input type="radio"/>		
PS1 (5-8) INQ+POC –2 Given data about characteristic properties of matter (e.g., melting and boiling points, density, solubility) identify, compare, or classify different substances.			Comments		
GSEs		Individual coherence with the Statement of Enduring Knowledge			
		Yes			No
PS1 (5-6)–2a recognizing that different...		<input type="radio"/>	<input type="radio"/>		
PS1 (5-6)–2b classifying and comparing...		<input type="radio"/>	<input type="radio"/>		
PS1 (7-8)–2a identifying an unknown...		<input type="radio"/>	<input type="radio"/>		
PS1 (7-8)–2b classifying and comparing...		<input type="radio"/>	<input type="radio"/>		
PS1 (5-8) INQ+ SAE –3 Collect data or use data provided to infer or predict that the total amount of mass in a closed system stays the same, regardless of how substances interact (conservation of matter).			Comments		
GSEs		Individual coherence with the Statement of Enduring Knowledge			
		Yes			No
PS1 (5-6)– 3a explaining that regardless...		<input type="radio"/>	<input type="radio"/>		
PS1 (7-8)–3a citing evidence to conclude...		<input type="radio"/>	<input type="radio"/>		
PS1 (5-8) SAE+MAS – 4 Represent or explain the relationship between or among energy, molecular motion, temperature, and states of matter.			Comments		
GSEs		Individual coherence with the Statement of Enduring Knowledge			
		Yes			No
PS1 (5-6)–4a differentiating among the...		<input type="radio"/>	<input type="radio"/>		
PS1 (5-6)–4b predicting the effects of...		<input type="radio"/>	<input type="radio"/>		
PS1 (7-8)–4a constructing models that...		<input type="radio"/>	<input type="radio"/>		
PS1 (7-8)–4b explaining the effect of...		<input type="radio"/>	<input type="radio"/>		
PS1 (7-8)– 4c observing the physical...		<input type="radio"/>	<input type="radio"/>		
PS1 (5-8) MAS – 5 Given graphic or written information, classify matter as atom/molecule or element/compound (Not the structure of an atom).			Comments		
GSEs		Individual coherence with the Statement of Enduring Knowledge			
		Yes			No
PS1 (5-6)– 5a distinguishing between solutions...		<input type="radio"/>	<input type="radio"/>		
PS1 (7-8)– 5a using models or diagrams to...		<input type="radio"/>	<input type="radio"/>		
PS1 (7-8)– 5b classifying elements and...		<input type="radio"/>	<input type="radio"/>		
PS1 (7-8)– 5c interpreting the symbols and...		<input type="radio"/>	<input type="radio"/>		
PS1 (7-8)– 5d using symbols and chemical...		<input type="radio"/>	<input type="radio"/>		
PS1 (7-8)– 5e explaining that when...		<input type="radio"/>	<input type="radio"/>		
PS1 (7-8)– 5f explaining that when...		<input type="radio"/>	<input type="radio"/>		

Question # 4: Does the set of GSEs within each Statement of Enduring Knowledge have the potential to promote coherent instruction? First, is each individual GSE coherent with the Statement of Enduring Knowledge under which it is listed? Second, as a whole, do these GSEs articulate well-balanced coverage of the major concepts within the EK statement? How could they be improved?

Go back and review ALL the GSEs *within* the Statement of Enduring Knowledge looking at them as a “GSE set.” Does the set of GSEs *within* this statement of enduring knowledge have the potential to promote coherent instruction?

PS 2 - Energy is necessary for change to occur in matter. Energy can be stored, transferred, and transformed, but cannot be destroyed.

GSEs for this EK Statement coherent as a set

Yes ☐ No ☐

PS2 (5-8)-SAE+ POC- 6 Given a real-world example, show that within a system, energy transforms from one form to another (i.e., chemical, heat, electrical, gravitational, light, sound, mechanical).

Comments

GSEs	Individual coherence with the Statement of Enduring Knowledge	
	Yes	No
PS2 (5-6)-6a <u>differentiating among the...</u>	<input type="radio"/>	<input type="radio"/>
PS2 (5-6)-6b <u>explaining how energy may...</u>	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)- 6a using a real world example...	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)-6b constructing a model to...	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)-6c explaining that while energy...	<input type="radio"/>	<input type="radio"/>

PS2 (5-8) INQ+SAE+POC – 7 Use data to draw conclusions about how heat can be transferred (convection, conduction, radiation).

Comments

GSEs	Individual coherence with the Statement of Enduring Knowledge	
	Yes	No
PS2 (5-6)–7a <u>identifying real world...</u>	<input type="radio"/>	<input type="radio"/>
PS2 (5-6)–7b <u>describing sound as the...</u>	<input type="radio"/>	<input type="radio"/>
PS2 (5-6)–7c <u>showing that electric...</u>	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–7a <u>designing a diagram, model,...</u>	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–7b <u>explaining the difference...</u>	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–7c <u>representing in words,...</u>	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–7d <u>describing the effect of...</u>	<input type="radio"/>	<input type="radio"/>
PS2 (7-8)–7e <u>differentiating between...</u>	<input type="radio"/>	<input type="radio"/>

PS 3 - The motion of an object is affected by forces.

GSEs for this EK Statement coherent as a set

Yes ☐ No ☐

PS3 (5-8) INQ+ POC –8 Use data to determine or predict the overall (net effect of multiple forces (e.g., friction, gravitational, magnetic) on the position, speed, and direction of motion of objects.

Comments

GSEs	Individual coherence with the Statement of Enduring Knowledge	
	Yes	No
PS3 (5-6)–8a using data or graphs to...	<input type="radio"/>	<input type="radio"/>
PS3 (5-6)–8b recognizing that a force is a...	<input type="radio"/>	<input type="radio"/>
PS3 (5-6)–8c <u>explaining that changes in...</u>	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8a <u>measuring distance and time ...</u>	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8b <u>solving for any unknown in...</u>	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8c <u>differentiating among speed...</u>	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8d testing predictions on how...	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8e describing or graphically...	<input type="radio"/>	<input type="radio"/>
PS3 (7-8)–8f <u>differentiating between mass....</u>	<input type="radio"/>	<input type="radio"/>

Question # 1: Clarity of GSE

Is the GSE articulated in a way that it is clear what is expected of classroom instruction/curriculum and state assessment? (Do I understand what learning will be assessed on the state assessment and the related curricular and/or instructional aspects?) If not, what aspect of the GLE needs further clarification? (E.g. clarify terminology, give examples, etc.).

ESS1 - The earth and earth materials as we know them today have developed over long periods of time, through continual change processes.

ESS1 (5-8) INQ+ POC –1 Use geological evidence provided to support the idea that the Earth's crust/lithosphere is composed of plates that move.

GSEs	Curriculum/ Instruction	State Assessment
ESS1 (5-6)–1a <u>identifying and describing...</u>	<input type="radio"/>	<input type="radio"/>
ESS1 (5-6)–1b <u>plotting location of volcanoes...</u>	<input type="radio"/>	<input type="radio"/>
ESS1 (7-8)– 1a <u>citing evidence and developing...</u>	<input type="radio"/>	<input type="radio"/>

Comments

ESS1 (5-8) SAE–2 Explain the processes that cause the cycling of water into and out of the atmosphere and their connections to our planet's weather patterns.

GSEs	Curriculum/ Instruction	State Assessment
ESS1 (5-6)–2a <u>diagramming, labeling and...</u>	<input type="radio"/>	<input type="radio"/>
ESS1 (5-6)–2b <u>explaining how condensation...</u>	<input type="radio"/>	<input type="radio"/>
ESS1 (5-6)–2c <u>developing models to explain...</u>	<input type="radio"/>	<input type="radio"/>
ESS1 (5-6)–2d <u>identifying composition and layers</u>	<input type="radio"/>	<input type="radio"/>

Comments

ESS1 (5-8) POC –3 Explain how earth events (abruptly and over time) can bring about changes in Earth's surface: landforms, ocean floor, rock features, or climate.

GSEs	Curriculum/ Instruction	State Assessment
ESS1 (5-6)–3a <u>analyzing events to determine...</u>	<input type="radio"/>	<input type="radio"/>
ESS1 (7-8)–3a <u>evaluating slow processes...</u>	<input type="radio"/>	<input type="radio"/>
ESS1 (7-8)–3b <u>evaluating fast processes...</u>	<input type="radio"/>	<input type="radio"/>
ESS1 (7-8)–3c <u>investigating the effect of...</u>	<input type="radio"/>	<input type="radio"/>

Comments

ESS1 (5-8) SAE+ POC –4 Explain the role of differential heating or convection in ocean currents, winds, weather and weather patterns, atmosphere, or climate.

GSEs	Curriculum/ Instruction	State Assessment
ESS1 (5-6)–4a <u>explaining how differential...</u>	<input type="radio"/>	<input type="radio"/>
ESS1 (5-6)–4b <u>describing how differential...</u>	<input type="radio"/>	<input type="radio"/>
ESS1 (5-6)–4c <u>explaining the relationship...</u>	<input type="radio"/>	<input type="radio"/>
ESS1 (5-6)–4d <u>analyzing global patterns of...</u>	<input type="radio"/>	<input type="radio"/>
ESS1 (5-6)–4e <u>predicting temperature and...</u>	<input type="radio"/>	<input type="radio"/>

Comments

ESS1 (5-8) INQ+ POC –5 Using data about a rock's physical characteristics make and support an inference about the rock's history and connection to rock cycle.

GSEs	Curriculum/ Instruction	State Assessment
ESS1 (5-6)–5a <u>representing the processes...</u>	<input type="radio"/>	<input type="radio"/>
ESS1 (5-6)–5b <u>citing evidence and developing...</u>	<input type="radio"/>	<input type="radio"/>

Comments

ESS2 - The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships.

ESS2 (5-8) MAS –6 Compare and contrast planets based on data provided about size, composition, location, orbital movement, atmosphere, or surface features (includes moons).

GSEs	Curriculum/ Instruction	State Assessment
ESS2 (5-6)–6a <u>identifying and comparing the...</u>	<input type="radio"/>	<input type="radio"/>
ESS2 (5-6)–6b <u>comparing the composition...</u>	<input type="radio"/>	<input type="radio"/>

Comments

Question # 1: Clarity of GSE

Is the GSE articulated in a way that it is clear what is expected of classroom instruction/curriculum and state assessment? (Do I understand what learning will be assessed on the state assessment and the related curricular and/or instructional aspects?) If not, what aspect of the GLE needs further clarification? (E.g. clarify terminology, give examples, etc.)

ESS2 - The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships.

ESS2 (5-8) NOS –7 Explain how technological advances have allowed scientists to re-evaluate or extend existing ideas about the solar system.

GSEs	Curriculum/ Instruction	State Assessment
ESS2 (7-8)-7a <u>identifying major discoveries...</u>	<input type="radio"/>	<input type="radio"/>

Comments

ESS2 (5-8) SAE+ POC –8 Explain temporal or positional relationships between or among the Earth, sun, and moon (e.g., night/day, seasons, year, tides) OR how gravitational force affects objects in the solar system (e.g., moons, tides, orbits, satellites)

GSEs	Curriculum/ Instruction	State Assessment
ESS2 (5-6)-8a <u>using models to describe the...</u>	<input type="radio"/>	<input type="radio"/>
ESS2 (5-6)-8b <u>explaining night/day, seasons...</u>	<input type="radio"/>	<input type="radio"/>
ESS2 (5-6)-8c <u>using a model of the Earth, sun...</u>	<input type="radio"/>	<input type="radio"/>
ESS2 (5-6)-8d <u>defining the Earth's gravity...</u>	<input type="radio"/>	<input type="radio"/>
ESS2 (7-8)–8a <u>using or creating a model of the...</u>	<input type="radio"/>	<input type="radio"/>
ESS2 (7-8)–8b <u>explaining night/day, seasons...</u>	<input type="radio"/>	<input type="radio"/>
ESS2 (7-8)–8c <u>using a model of the Earth, sun...</u>	<input type="radio"/>	<input type="radio"/>
ESS2 (7-8)-8d <u>describing the effect of mass...</u>	<input type="radio"/>	<input type="radio"/>
ESS2 (7-8)-8e <u>describing the effect of distance...</u>	<input type="radio"/>	<input type="radio"/>
ESS2 (7-8)-8f <u>explaining that the sun's...</u>	<input type="radio"/>	<input type="radio"/>

Comments

ESS3 - The origin and evolution of galaxies and the universe demonstrate fundamental principles of physical science across vast distances and time

*There are no ESS3 State Assessment Targets at this grade span.
The GSEs listed below are assessed at the local level only*

GSEs	Curriculum/ Instruction	State Assessment
ESS3 (5-6)–9a <u>describing the apparent...</u>	<input type="radio"/>	<input type="radio"/>
ESS3 (5-6)–9b <u>identifying the sun as a...</u>	<input type="radio"/>	<input type="radio"/>
ESS3 (7-8)-9a <u>describing the universe as...</u>	<input type="radio"/>	<input type="radio"/>

Question # 2: Clarity of Grade Span Differences

Are the differences between the GSEs of adjacent grade spans clear? They should show the appropriate developmental growth as they progress K - high school.

NOTE: In some cases, no differences are articulated between the adjacent (corresponding) GSEs. This may be due to increasing difficulty in some related GSE.

ESS1 - The earth and earth materials as we know them today have developed over long periods of time, through continual change processes.

<i>ESS1 (5-8) INQ+ POC –1 Use geological evidence provided to support the idea that the Earth's crust/lithosphere is composed of plates that move.</i>			Comments
GSEs	Differences are clear	Differences not clear	
ESS1 (5-6)–1a <u>identifying and describing...</u>	<input type="radio"/>	<input type="radio"/>	
ESS1 (5-6)–1b <u>plotting location of volcanoes...</u>	<input type="radio"/>	<input type="radio"/>	
ESS1 (7-8)– 1a <u>citing evidence and developing...</u>	<input type="radio"/>	<input type="radio"/>	

<i>ESS1 (5-8) SAE–2 Explain the processes that cause the cycling of water into and out of the atmosphere and their connections to our planet's weather patterns.</i>			Comments
GSEs	Differences are clear	Differences not clear	
ESS1 (5-6)–2a <u>diagramming, labeling and...</u>	<input type="radio"/>	<input type="radio"/>	
ESS1 (5-6)–2b <u>explaining how condensation...</u>	<input type="radio"/>	<input type="radio"/>	
ESS1 (5-6)–2c <u>developing models to explain...</u>	<input type="radio"/>	<input type="radio"/>	
ESS1 (5-6)–2d <u>identifying composition and layers</u>	<input type="radio"/>	<input type="radio"/>	

<i>ESS1 (5-8) POC –3 Explain how earth events (abruptly and over time) can bring about changes in Earth's surface: landforms, ocean floor, rock features, or climate.</i>			Comments
GSEs	Differences are clear	Differences not clear	
ESS1 (5-6)–3a <u>analyzing events to determine...</u>	<input type="radio"/>	<input type="radio"/>	
ESS1 (7-8)–3a <u>evaluating slow processes...</u>	<input type="radio"/>	<input type="radio"/>	
ESS1 (7-8)–3b <u>evaluating fast processes...</u>	<input type="radio"/>	<input type="radio"/>	
ESS1 (7-8)–3c <u>investigating the effect of...</u>	<input type="radio"/>	<input type="radio"/>	

<i>ESS1 (5-8) SAE+ POC –4 Explain the role of differential heating or convection in ocean currents, winds, weather and weather patterns, atmosphere, or climate.</i>			Comments
GSEs	Differences are clear	Differences not clear	
ESS1 (5-6)–4a <u>explaining how differential...</u>	<input type="radio"/>	<input type="radio"/>	
ESS1 (5-6)–4b <u>describing how differential...</u>	<input type="radio"/>	<input type="radio"/>	
ESS1 (5-6)–4c <u>explaining the relationship...</u>	<input type="radio"/>	<input type="radio"/>	
ESS1 (5-6)–4d <u>analyzing global patterns of...</u>	<input type="radio"/>	<input type="radio"/>	
ESS1 (5-6)–4e <u>predicting temperature and...</u>	<input type="radio"/>	<input type="radio"/>	

<i>ESS1 (5-8) INQ+ POC –5 Using data about a rock's physical characteristics make and support an inference about the rock's history and connection to rock cycle.</i>			Comments
GSEs	Differences are clear	Differences not clear	
ESS1 (5-6)–5a <u>representing the processes...</u>	<input type="radio"/>	<input type="radio"/>	
ESS1 (5-6)–5b <u>citing evidence and developing...</u>	<input type="radio"/>	<input type="radio"/>	

ESS2 - The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships.

<i>ESS2 (5-8) MAS –6 Compare and contrast planets based on data provided about size, composition, location, orbital movement, atmosphere, or surface features (includes moons).</i>			Comments
GSEs	Differences are clear	Differences not clear	
ESS2 (5-6)–6a <u>identifying and comparing the...</u>	<input type="radio"/>	<input type="radio"/>	
ESS2 (5-6)–6b <u>comparing the composition...</u>	<input type="radio"/>	<input type="radio"/>	

Question # 2: Clarity of Grade Span Differences

Are the differences between the GSEs of adjacent grade spans clear? They should show the appropriate developmental growth as they progress K - high school.

NOTE: In some cases, no differences are articulated between the adjacent (corresponding) GSEs. This may be due to increasing difficulty in some related GSE.

ESS2 - The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships.

ESS2 (5-8) NOS –7 Explain how technological advances have allowed scientists to re-evaluate or extend existing ideas about the solar system.

GSEs	Differences are clear	Differences not clear
ESS2 (7-8)-7a <u>identifying major discoveries...</u>	<input type="radio"/>	<input type="radio"/>

Comments

ESS2 (5-8) SAE+ POC –8 Explain temporal or positional relationships between or among the Earth, sun, and moon (e.g., night/day, seasons, year, tides) OR how gravitational force affects objects in the solar system (e.g., moons, tides, orbits, satellites)

GSEs	Differences are clear	Differences not clear
ESS2 (5-6)-8a <u>using models to describe the...</u>	<input type="radio"/>	<input type="radio"/>
ESS2 (5-6)-8b <u>explaining night/day, seasons...</u>	<input type="radio"/>	<input type="radio"/>
ESS2 (5-6)-8c <u>using a model of the Earth, sun...</u>	<input type="radio"/>	<input type="radio"/>
ESS2 (5-6)-8d <u>defining the Earth's gravity...</u>	<input type="radio"/>	<input type="radio"/>
ESS2 (7-8)–8a <u>using or creating a model of the...</u>	<input type="radio"/>	<input type="radio"/>
ESS2 (7-8)–8b <u>explaining night/day, seasons...</u>	<input type="radio"/>	<input type="radio"/>
ESS2 (7-8)–8c <u>using a model of the Earth, sun...</u>	<input type="radio"/>	<input type="radio"/>
ESS2 (7-8)-8d <u>describing the effect of mass...</u>	<input type="radio"/>	<input type="radio"/>
ESS2 (7-8)-8e <u>describing the effect of distance...</u>	<input type="radio"/>	<input type="radio"/>
ESS2 (7-8)-8f <u>explaining that the sun's...</u>	<input type="radio"/>	<input type="radio"/>

Comments

ESS3 - The origin and evolution of galaxies and the universe demonstrate fundamental principles of physical science across vast distances and time

There are no ESS3 State Assessment Targets at this grade span. The GSEs listed below are assessed at the local level only

GSEs	Differences are clear	Differences not clear
ESS3 (5-6)–9a <u>describing the apparent...</u>	<input type="radio"/>	<input type="radio"/>
ESS3 (5-6)–9b <u>identifying the sun as a...</u>	<input type="radio"/>	<input type="radio"/>
ESS3 (7-8)-9a <u>describing the universe as...</u>	<input type="radio"/>	<input type="radio"/>

Comments

Question 3: Expected Rigor

Is the GSE more rigorous, similar to, or less rigorous than what is presently expected in your school's science program at that grade span?

ESS1 - The earth and earth materials as we know them today have developed over long periods of time, through continual change processes.

ESS1 (5-8) INQ+ POC –1 Use geological evidence provided to support the idea that the Earth's crust/lithosphere is composed of plates that move.

GSEs	More Rigorous	As Rigorous	Less Rigorous
ESS1 (5-6)–1a <u>identifying and describing...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS1 (5-6)–1b <u>plotting location of volcanoes...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS1 (7-8)–1a <u>citing evidence and developing...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments

ESS1 (5-8) SAE–2 Explain the processes that cause the cycling of water into and out of the atmosphere and their connections to our planet's weather patterns.

GSEs	More Rigorous	As Rigorous	Less Rigorous
ESS1 (5-6)–2a <u>diagramming, labeling and...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS1 (5-6)–2b <u>explaining how condensation...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS1 (5-6)–2c <u>developing models to explain...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS1 (5-6)–2d <u>identifying composition and ...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments

ESS1 (5-8) POC-3 Explain how earth events (abruptly and over time) can bring about changes in Earth's surface: landforms, ocean floor, rock features, and climate

GSEs	More Rigorous	As Rigorous	Less Rigorous
ESS1 (5-6)–3a <u>analyzing events to determine...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS1 (7-8)–3a <u>evaluating slow processes...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS1 (7-8)–3b <u>evaluating fast processes...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS1 (7-8)–3c <u>investigating the effect of...</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments

Question 3: Expected Rigor

Is the GSE more rigorous, similar to, or less rigorous than what is presently expected in your school's science program at that grade span?

ESS1 - The earth and earth materials as we know them today have developed over long periods of time, through continual change processes.

ESS1 (5-8) SAE+ POC –4 Explain the role of differential heating or convection in ocean currents, winds, weather and weather patterns, atmosphere, or climate.

GSEs	More Rigorous	As Rigorous	Less Rigorous
ESS1 (5-6)–4a <u>explaining</u> how differential...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS1 (5-6)–4b <u>describing</u> how differential...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS1 (5-6)–4c <u>explaining</u> the relationship...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS1 (5-6)–4d <u>analyzing</u> global patterns of...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS1 (5-6)–4e <u>predicting</u> temperature and...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments

ESS1 (5-8) INQ+ POC –5 Using data about a rock's physical characteristics make and support an inference about the rock's history and connection to rock cycle.

GSEs	More Rigorous	As Rigorous	Less Rigorous
ESS1 (5-6)–5a <u>representing</u> the processes...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS1 (5-6)–5b <u>citing evidence</u> and <u>developing</u> ...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments

ESS2 - The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships.

ESS2 (5-8) MAS –6 Compare and contrast planets based on data provided about size, composition, location, orbital movement, atmosphere, or surface features (includes moons).

GSEs	More Rigorous	As Rigorous	Less Rigorous
ESS2 (5-6)–6a <u>identifying</u> and <u>comparing</u> the...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS2 (5-6)–6b <u>comparing</u> the <u>composition</u> ,...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments

ESS2 (5-8) NOS –7 Explain how technological advances have allowed scientists to re-evaluate or extend existing ideas about the solar system.

GSEs	More Rigorous	As Rigorous	Less Rigorous
ESS2 (7-8)–7a <u>identifying</u> major discoveries...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments

ESS2 (5-8) SAE+ POC –8 Explain temporal or positional relationships between or among the Earth, sun, and moon (e.g., night/day, seasons, year, tides) OR how gravitational force affects objects in the solar system (e.g., moons, tides, orbits, satellites)

GSEs	More Rigorous	As Rigorous	Less Rigorous
ESS2 (5-6)–8a <u>using</u> models to describe the...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS2 (5-6)–8b <u>explaining</u> night/day, seasons...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS2 (5-6)–8c <u>using</u> a model of the Earth, sun...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS2 (5-6)–8d <u>defining</u> the Earth's gravity...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS2 (7-8)–8a <u>using</u> or <u>creating</u> a model of the...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS2 (7-8)–8b <u>explaining</u> night/day, seasons...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS2 (7-8)–8c <u>using</u> a model of the Earth, sun...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS2 (7-8)–8d <u>describing</u> the effect of mass...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS2 (7-8)–8e <u>describing</u> the effect of distance...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS2 (7-8)–8f <u>explaining</u> that the sun's...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments

There are no ESS3 State Assessment Targets at this grade span. The GSEs listed below are assessed at the local level only

GSEs	More Rigorous	As Rigorous	Less Rigorous
ESS3 (5-6)–9a <u>describing</u> the apparent...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS3 (5-6)–9b <u>identifying</u> the sun as a...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESS3 (7-8)–9a <u>describing</u> the universe as...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments

Question # 4: Does the set of GSEs within each Statement of Enduring Knowledge have the potential to promote coherent instruction? First, is each individual GSE coherent with the Statement of Enduring Knowledge under which it is listed? Second, as a whole, do these GSEs articulate well-balanced coverage of the major concepts within the EK statement? How could they be improved?

Go back and review ALL the GSEs *within* the Statement of Enduring Knowledge looking at them as a “GSE set.” Does the set of GSEs *within* this statement of enduring knowledge have the potential to promote coherent instruction?

ESS 1 - The earth and earth materials as we know them today have developed over long periods of time, through continual change processes.	GSEs for this EK Statement coherent as a set Yes <input type="radio"/> No <input type="radio"/>
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<i>ESS1 (5-8) INQ+ POC –IUse geological evidence provided to support the idea that the Earth’s crust/lithosphere is composed of plates that move.</i>			Comments
GSEs	Individual coherence with the Statement of Enduring Knowledge		
	Yes	No	
	○	○	
	○	○	
ESS1 (5-6)–1a <u>identifying and describing...</u>	○	○	
ESS1 (5-6)-1b <u>plotting location of volcanoes...</u>	○	○	
ESS1 (7-8)– 1a citing evidence and <u>developing...</u>	○	○	

ESS1 (5-8) SAE–2 Explain the processes that cause the cycling of water into and out of the atmosphere and their connections to our planet’s weather patterns.		Comments	
GSEs	Individual coherence with the Statement of Enduring Knowledge		
	YesNo		
	ESS1 (5-6)–2a diagramming, labeling and... ESS1 (5-6)–2b explaining how condensation... ESS1 (5-6)–2c developing models to explain... ESS1 (5-6)–2d identifying composition and layers		<div><div></div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div><div></div></div>

			Comments	
<i>ESS1 (5-8) POC –3 Explain how earth events (abruptly and over time) can bring about changes in Earth’s surface: landforms, ocean floor, rock features, or climate.</i>				
GSEs	Individual coherence with the Statement of Enduring Knowledge			
	Yes	No		
	ESS1 (5-6)–3a <u>analyzing events to determine...</u>	<input type="radio"/>	<input type="radio"/>	
	ESS1 (7-8)–3a <u>evaluating slow processes...</u>	<input type="radio"/>	<input type="radio"/>	
	ESS1 (7-8)–3b <u>evaluating fast processes...</u>	<input type="radio"/>	<input type="radio"/>	
	ESS1 (7-8)–3c <u>investigating the effect of...</u>	<input type="radio"/>	<input type="radio"/>	

<i>ESS1 (5-8) SAE+ POC –4 Explain the role of differential heating or convection in ocean currents, winds, weather and weather patterns, atmosphere, or climate.</i>		Comments
GSEs	Individual coherence with the Statement of Enduring Knowledge	
	<div>YesNo</div>	
ESS1 (5-6)–4a <u>explaining how differential...</u>	<div>○○</div>	
ESS1 (5-6)–4b <u>describing how differential...</u>	<div>○○</div>	
ESS1 (5-6)–4c <u>explaining the relationship...</u>	<div>○○</div>	
ESS1 (5-6)–4d <u>analyzing global patterns of...</u>	<div>○○</div>	
ESS1 (5-6)–4e <u>predicting temperature and...</u>	<div>○○</div>	

<i>ESS1 (5-8) INQ+ POC –5 Using data about a rock’s physical characteristics make and support an inference about the rock’s history and connection to rock cycle.</i>			Comments
GSEs	Individual coherence with the Statement of Enduring Knowledge		
	Yes	No	
	<input type="radio"/>	<input type="radio"/>	
	<input type="radio"/>	<input type="radio"/>	

ESS2 - The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships.	GSEs for this EK Statement coherent as a set Yes <input type="radio"/> No <input type="radio"/>
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ESS2 (5-8) MAS –6 Compare and contrast planets based on data provided about size, composition, location, orbital movement, atmosphere, or surface features (includes moons).			Comments
GSEs	Individual coherence with the Statement of Enduring Knowledge		
	Yes	No	
	<input type="radio"/>	<input type="radio"/>	
	<input type="radio"/>	<input type="radio"/>	

Question # 4: Does the set of GSEs within each Statement of Enduring Knowledge have the potential to promote coherent instruction? First, is each individual GSE coherent with the Statement of Enduring Knowledge under which it is listed? Second, as a whole, do these GSEs articulate well-balanced coverage of the major concepts within the EK statement? How could they be improved?

Go back and review ALL the GSEs *within* the Statement of Enduring Knowledge looking at them as a “GSE set.” Does the set of GSEs *within* this statement of enduring knowledge have the potential to promote coherent instruction?

ESS2 - The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships.		GSEs for this EK Statement coherent as a set	
		see section above	
<i>ESS2 (5-8) NOS –7 Explain how technological advances have allowed scientists to re-evaluate or extend existing ideas about the solar system.</i>		Comments	
GSEs	Individual coherence with the Statement of Enduring Knowledge		
	Yes No		
ESS2 (7-8)-7a <u>identifying major discoveries...</u>	<input type="radio"/> <input type="radio"/>		
<i>ESS2 (5-8) SAE+ POC –8 Explain temporal or positional relationships between or among the Earth, sun, and moon (e.g., night/day, seasons, year, tides) OR how gravitational force affects objects in the solar system (e.g., moons, tides, orbits, ...)</i>		Comments	
GSEs	Individual coherence with the Statement of Enduring Knowledge		
	Yes No		
ESS2 (5-6)-8a <u>using models to describe the...</u>	<input type="radio"/> <input type="radio"/>		
ESS2 (5-6)-8b <u>explaining night/day, seasons...</u>	<input type="radio"/> <input type="radio"/>		
ESS2 (5-6)-8c <u>using a model of the Earth, sun...</u>	<input type="radio"/> <input type="radio"/>		
ESS2 (5-6)-8d <u>defining the Earth's gravity...</u>	<input type="radio"/> <input type="radio"/>		
ESS2 (7-8)-8a <u>using or creating a model of the...</u>	<input type="radio"/> <input type="radio"/>		
ESS2 (7-8)-8b <u>explaining night/day, seasons...</u>	<input type="radio"/> <input type="radio"/>		
ESS2 (7-8)-8c <u>using a model of the Earth, sun...</u>	<input type="radio"/> <input type="radio"/>		
ESS2 (7-8)-8d <u>describing the effect of mass...</u>	<input type="radio"/> <input type="radio"/>		
ESS2 (7-8)-8e <u>describing the effect of distance...</u>	<input type="radio"/> <input type="radio"/>		
ESS2 (7-8)-8f <u>explaining that the sun's...</u>	<input type="radio"/> <input type="radio"/>		
ESS3 - The origin and evolution of galaxies and the universe demonstrate fundamental principles of physical science across vast distances and time		GSEs for this EK Statement coherent as a set	
		Yes <input type="radio"/>	No <input type="radio"/>
<i>There are no ESS3 State Assessment Targets at this grade span. The GSEs listed below are assessed at the local level only.</i>		Comments	
GSEs	Individual coherence with the Statement of Enduring Knowledge		
	Yes No		
ESS3 (5-6)-9a <u>describing the apparent...</u>	<input type="radio"/> <input type="radio"/>		
ESS3 (5-6)-9b <u>identifying the sun as a...</u>	<input type="radio"/> <input type="radio"/>		
ESS3 (7-8)-9a <u>describing the universe as...</u>	<input type="radio"/> <input type="radio"/>		

Question #5: What science content (important concepts) is missing in these draft science GSEs? Where are there gaps in content? This information is most essential for developing the science GSEs for local curriculum, instruction and assessment.

Relevant EK (Identify by domain and number - ex. LS1)	Content/Concepts Needing Inclusion (Please provide as much detail as possible)

Appendix A: GSE Development in Science

Givens:

- GSEs in science are developed in grade spans K-2, 3-4, 5-6, 7-8 and high school.
- High school science GSEs for all students cover the content and skills eligible for the large-scale assessment given at the end of Grade 11.
- Examples of “Extensions” to the high school science GSEs are provided to guide the more in depth study of particular topic and for local curriculum and assessment
- The science GSEs are for state assessment and local curriculum and assessment purposes.
- The science GSEs are aligned with, but not necessarily limited by, existing state frameworks.

Purpose of GSE: The science GSEs are specified for a common, large-scale, state level assessment, and some are identified for local curriculum and assessment option.

Definition of a GSE: A science GSE is a stated objective that is aligned with the Rhode Island science framework and the national science standards, by grade span. A GSE differentiates performance on concepts, skills, or content knowledge between adjacent grade levels and spans, and as a set, leads to focused, coherent, and developmentally appropriate instruction without narrowing the curriculum

Criteria for the Development of GSEs:

- 1) GSEs in science **must** relate to national science standards, but not be limited by them.
- 2) GSEs should maintain a balance between a generalizable skill, concept, or piece of knowledge, **and** enough specificity to differentiate skill, concept, or knowledge between adjacent grades, to make it clear to teachers what is to be taught and learned, *without being so specific that it narrows the curriculum.*
- 3) GSEs should explicitly indicate cognitive demand (interaction of content and process). There should be a mix of cognitive demands at all grade levels, not an assumption that students in lower grades do less cognitively demanding work. (The verbs used in the construction of the science GSEs are consistent with the Webb’s Depth of Knowledge (DOK) levels. Most science GSEs are written at DOK levels 2 and 3) see TABLE 1
- 4) GSEs should be specific and clear enough to know how they will be assessed.
- 5) GSEs should contain language that describes expected performance so that a student’s achievement in relation to the GSE can be validly assessed for state assessment purposes.
 - a. **Not assessable** – E.g., “Students demonstrate an understanding of characteristic properties of matter.”
 - b. **Assessable** – E.g., Students demonstrate an understanding of characteristic properties of matter by citing evidence (e.g., prior knowledge, data) to support conclusions about why objects are grouped/not grouped together

Criteria for the Development of a *SET* of Grade Span Expectation in Science

- The set of GSEs should be of comparable grain size.
- Concepts, skills, and knowledge should be differentiated between adjacent grade spans.
- The set of GSEs within a domain of science (Life Science, Physical Science, Earth and Space Science) and the Statement of Enduring Knowledge reflects the relative importance as defined by a review of national and state science standards.
- The set of GSEs should promote coherent, focused, developmentally appropriate instruction, as opposed to isolated instruction *just* on topics, facts, or individual skills that need to be covered.
- The set of GSEs should be reasonable to learn adequately (assuming prior learning).
- The set of GSEs should be constructed as a continuum of learning. Success in one grade span should be a good predictor of success in the following year.
- Success on GSEs across multiple years should be a good predictor of performance at the national benchmark years. (i.e., NAEP).

Rhode Island Grade Span Expectations K-12 in Science Field Review – Grade Span 5-8

TABLE 1 Sample Descriptors for each of the DOK Levels in Science, based on Webb

(working draft K. Hess, updated September 2005)

Level 1 Recall & Reproduction	Level 2 Skills & Concepts	Level 3 Strategic Thinking	Level 4 Extended Thinking
a. Recall or recognize a fact, term, definition, simple procedure (such as one step), or property b. Demonstrate a rote response c. Use a well-known formula d. Represent in words or diagrams a scientific concept or relationship e. Provide or recognize a standard scientific representation for simple phenomenon f. Perform a routine procedure, such as measuring length g. Perform a simple science process or a set procedure (like a recipe) h. Perform a clearly defined set of steps i. Identify, calculate, or measure NOTE: If the knowledge necessary to answer an item automatically provides the answer, it is a Level 1.	a. Specify and explain the relationship between facts, terms, properties, or variables b. Describe and explain examples and non-examples of science concepts c. Select a procedure according to specified criteria and perform it d. Formulate a routine problem given data and conditions e. Organize, represent, and compare data f. Make a decision as to how to approach the problem g. Classify, organize, or estimate h. Compare data i. Make observations j. Interpret information from a simple graph k. Collect and display data NOTE: If the knowledge necessary to answer an item <u>does not</u> automatically provide the answer, then the item is at least a Level 2. Most actions imply more than one step. NOTE: Level 3 is complex and abstract. If more than one response is possible, it is at least a Level 3 and calls for use of reasoning, justification, evidence, as support for the response.	a. Interpret information from a complex graph (such as determining features of the graph or aggregating data in the graph) b. Use reasoning, planning, and evidence c. Explain thinking (beyond a simple explanation or using only a word or two to respond) d. Justify a response e. Identify research questions and design investigations for a scientific problem f. Use concepts to solve non-routine problems/more than one possible answer g. Develop a scientific model for a complex situation h. Form conclusions from experimental or observational data i. Complete a multi-step problem that involves planning and reasoning j. Provide an explanation of a principle k. Justify a response when more than one answer is possible l. Cite evidence and develop a logical argument for concepts m. Conduct a designed investigation n. Research and explain a scientific concept o. Explain phenomena in terms of concepts	a. Select or devise approach among many alternatives to solve problem b. Based on provided data from a complex experiment that is novel to the student, deduct the fundamental relationship between several controlled variables. c. Conduct an investigation, from specifying a problem to designing and carrying out an experiment, to analyzing its data and forming conclusions d. Relate ideas <i>within</i> the content area or <i>among</i> content areas e. Develop generalizations of the results obtained and the strategies used and apply them to new problem situations NOTE: Level 4 activities often require an extended period of time for carrying out multiple steps; however, time alone is not a distinguishing factor if skills and concepts are simply repetitive over time.